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10/649,269	08/27/2003	Sudhir G. Rao		6434

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EXAMINER
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ART UNIT	PAPER NUMBER
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DATE MAILED: 05/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>27 August 2003</u>.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-31</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-31</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Specification

1.   The abstract of the disclosure is objected to because the numbers in the

parentheses need to be removed. Correction is required. See MPEP § 608.01(b).

2.   The specification is objected to as failing to provide proper antecedent basis for

the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction

of the following is required: The computer-readable signal-bearing medium disclosed in

claims 17-22 is not defined within the specification, but is defined within claim 18 as

being selected from the group of a recordable data storage medium and a modulated

carrier signal.

Claim Objections

3.   Claims 9-16 are objected to because of the following informalities: The preamble

discloses 'A multiprocessor computer system'. Examiner believes that the preamble

should state 'A multi-node computer system' as is disclosed on page 5, lines 19-20 of

the specification. Appropriate correction is required.

Claim Rejections - 35 USC § 101

4.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
> matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
> conditions and requirements of this title.

5.   Claims 17-22 are not limited to statutory embodiments. In view of Applicant's

disclosure, on page 4, claim 18, the computer-readable signal-bearing medium is not

limited to statutory embodiments, instead being defined as including both statutory

embodiments (e.g., recordable data storage medium) and non-statutory embodiments

(e.g., modulated carrier signal). As such, the claim is not limited to statutory subject

matter and is therefore non-statutory.

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

7.   Claims 1-5,7-13,15-19,21-23,26,27 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Yeager et al. (US Publication Number 20050086300) in view of

Langfahl, Jr. (USPN 6031528A), hereinafter referred to as Yeager. As appears in claims

1,17, Yeager discloses configuring a cluster with a gateway for a network interface, on

page 20, paragraph 0255 and page 41, paragraph 0528. Heartbeat messages are

disclosed on page 21, paragraph 0270. Heartbeat messages are known to be received

back by the computer/node that sent it or it is not received back at all, see Gadir et al.

(USPN 2003/0018927).

Yeager fails to explicitly state issuing an operating system ICMP echo to peer

nodes in said cluster and to said gateway through said network interface in response to

a heartbeat loss detection; and analyzing a response from said echo to determine

location of a fault in said cluster.

Langfahl, Jr. discloses this limitation in column 3, lines 15-30 and column 5, lines

13-32.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to issue an operating system ICMP echo to peer nodes in said cluster and to said gateway through said network interface in response to a heartbeat loss detection; and analyze a response from said echo to determine location of a fault in said cluster. A person of ordinary skill in the art would have been motivated to issue an operating system ICMP echo to peer nodes in said cluster and to said gateway through said network interface in response to a heartbeat loss detection; and analyze a response from said echo to determine location of a fault in said cluster because ICMP echo requests are used to indicate whether a network computer or node is functioning correctly in order to give an indication of where a problem lies within the network. This is disclosed in column 4, lines 28-33 and column 5, lines 6-12.

8.   As per claims 2,19, Yeager fails to explicitly state wherein the step of analyzing a response from said echo includes receiving said response and determining an intended recipient of said echo.

Langfahl, Jr. discloses this limitation in column 5, lines 13-32.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have wherein the step of analyzing a response from said echo includes receiving said response and determining an intended recipient of said echo. A person of ordinary skill in the art would have been motivated to have wherein the step of analyzing a response from said echo includes receiving said response and determining an intended recipient of said echo because ICMP echo requests indicate the success or failure of whether or not a network computer/node is

functioning correctly when sent to a specific computer or node. This is disclosed in column 4, lines 28-33 and column 5, lines 6-12.

9.   As per claims 3,11, Yeager fails to explicitly state wherein receipt of a return of said echo from said peer nodes for said network interface within a predefined time interval is indicative of operation of said network interface.

        Langfahl, Jr. discloses this limitation in column 3, lines 15-30; column 5, lines 13-32.

        Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have wherein receipt of a return of said echo from said peer nodes for said network interface within a predefined time interval is indicative of operation of said network interface. A person of ordinary skill in the art would have been motivated to have wherein receipt of a return of said echo from said peer nodes for said network interface within a predefined time interval is indicative of operation of said network interface because ICMP echo requests indicate the success or failure of whether or not a network computer/node is functioning correctly when sent to a specific computer or node. This is disclosed in column 4, lines 28-33 and column 5, lines 6-12.

10.   As per claims 4,12, Yeager fails to explicitly state discloses wherein receipt of a return of said echo from said gateway for said network interface within a predefined time interval is indicative of operation of said network interface.

        Langfahl, Jr. discloses this limitation in column 3, lines 15-30; column 5, lines 13-32.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have wherein receipt of a return of said echo from said peer nodes for said network interface within a predefined time interval is indicative of operation of said network interface. A person of ordinary skill in the art would have been motivated to have wherein receipt of a return of said echo from said peer nodes for said network interface within a predefined time interval is indicative of operation of said network interface because ICMP echo requests indicate the success or failure of whether or not a network computer/node is functioning correctly when sent to a specific computer or node. This is disclosed in column 4, lines 28-33 and column 5, lines 6-12.

11.   As per claim 5, Yeager fails to explicitly state wherein absence of return of said echo from said peer nodes for said network interface within a predefined time interval is indicative of a fault selected from a group consisting of: a peer node fault, a network fault local to the peer node, and combinations thereof.

Langfahl, Jr. discloses this limitation in column 5, lines 13-32.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have wherein absence of return of said echo from said peer nodes for said network interface within a predefined time interval is indicative of a fault selected from a group consisting of: a peer node fault, a network fault local to the peer node, and combinations thereof. A person of ordinary skill in the art would have been motivated to have wherein absence of return of said echo from said peer nodes for said network interface within a predefined time interval is indicative of a fault selected from a group consisting of: a peer node fault, a network fault local to the peer

node, and combinations thereof because ICMP echo requests indicate the success or

failure of whether or not a network computer/node is functioning correctly when sent to

a specific computer or node. This is disclosed in column 4, lines 28-33 and column 5,

lines 6-12.

12.   As per claims 7,21, Yeager fails to explicitly state comparing an echo response

from a target node set for each network interface.

        Langfahl, Jr. discloses this limitation in column 5, lines 9-32. In response to the

echo requests, the network map visually indicates whether the links, gateway, and

computer/nodes have any problems.

        Accordingly, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to have comparing an echo response from a target node

set for each network interface. A person of ordinary skill in the art would have been

motivated to have comparing an echo response from a target node set for each network

interface because ICMP echo requests indicate the success or failure of whether or not

a network computer/node, link, or gateway are functioning correctly when sent to a

specific computer or node. This is disclosed in column 4, lines 28-33 and column 5,

lines 6-12.

13.   As per claims 8,22, Yeager fails to explicitly state wherein the step of comparing

an echo response from a target node set for each network interface includes criteria

selected from the group consisting of: maximum availability of nodes in said network,

availability of said gateway in said network, and combinations thereof.

Langfahl, Jr. discloses this limitation in column 5, lines 9-32. In response to the

echo requests, the network map visually indicates whether the links, gateway, and

computer/nodes have any problems.

Accordingly, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to have wherein the step of comparing an echo response

from a target node set for each network interface includes criteria selected from the

group consisting of: maximum availability of nodes in said network, availability of said

gateway in said network, and combinations thereof. A person of ordinary skill in the art

would have been motivated to have wherein the step of comparing an echo response

from a target node set for each network interface includes criteria selected from the

group consisting of: maximum availability of nodes in said network, availability of said

gateway in said network, and combinations thereof because ICMP echo requests

indicate the success or failure of whether or not a network computer/node, link, or

gateway are functioning correctly when sent to a specific computer or node. This is

disclosed in column 4, lines 28-33 and column 5, lines 6-12.

14.   As per claim 9, Yeager discloses a cluster with a gateway configured for a

network interface on page 20, paragraph 0255 and page 41, paragraph 0528. Heartbeat

messages are disclosed on page 21, paragraph 0270.

Yeager fails to explicitly state an operating system ICMP echo adapted to be

issued to peer nodes in a cluster and to said gateway through said network interface in

response to a heartbeat loss detection; and a response from said echo adapted to be

analyzed for location of a fault in said cluster.

Langfahl, Jr. discloses this limitation in column 3, lines 15-30 and column 5, lines 13-32.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have an operating system ICMP echo adapted to be issued to peer nodes in a cluster and to said gateway through said network interface in response to a heartbeat loss detection; and a response from said echo adapted to be analyzed for location of a fault in said cluster. A person of ordinary skill in the art would have been motivated to have an operating system ICMP echo adapted to be issued to peer nodes in a cluster and to said gateway through said network interface in response to a heartbeat loss detection; and a response from said echo adapted to be analyzed for location of a fault in said cluster because ICMP echo requests are used to indicate whether a network computer or node is functioning correctly in order to give an indication of where a problem lies within the network. This is disclosed in column 4, lines 28-33 and column 5, lines 6-12.

15.   As per claim 10, Yeager fails to explicitly state wherein analysis of said response from said echo includes determination of an intended recipient of said echo.

Langfahl, Jr. discloses this limitation in column 5, lines 13-32.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have wherein analysis of said response from said echo includes determination of an intended recipient of said echo. A person of ordinary skill in the art would have been motivated to have wherein analysis of said response from said echo includes determination of an intended recipient of said echo because ICMP echo

requests indicate the success or failure of whether or not a network computer/node is functioning correctly when sent to a specific computer or node. This is disclosed in column 4, lines 28-33 and column 5, lines 6-12.

16.   As per claim 13, Yeager fails to explicitly state wherein absence of receipt of a of said echo from peer nodes for said network interface within a predefined time interval is indicative of a fault selected from a group consisting of: a peer node fault, a network fault local to the peer node, and combinations thereof.

Langfahl, Jr. discloses this limitation in column 5, lines 13-32.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have wherein absence of receipt of said echo from said peer nodes for said network interface within a predefined time interval is indicative of a fault selected from a group consisting of: a peer node fault, a network fault local to the peer node, and combinations thereof. A person of ordinary skill in the art would have been motivated to have wherein absence of receipt of said echo from said peer nodes for said network interface within a predefined time interval is indicative of a fault selected from a group consisting of: a peer node fault, a network fault local to the peer node, and combinations thereof because ICMP echo requests indicate the success or failure of whether or not a network computer/node is functioning correctly when sent to a specific computer or node. This is disclosed in column 4, lines 28-33 and column 5, lines 6-12.

17.   As per claim 15, Yeager fails to explicitly state a comparison tool adapted to compare an echo response from a target node for each network interface.

Langfahl, Jr. discloses this limitation in column 5, lines 9-32. In response to the echo requests, the network map visually indicates whether the links, gateway, and computer/nodes have any problems.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a comparison tool adapted to compare an echo response from a target node for each network interface. A person of ordinary skill in the art would have been motivated to have a comparison tool adapted to compare an echo response from a target node for each network interface because ICMP echo requests indicate the success or failure of whether or not a network computer/node, link, or gateway are functioning correctly when sent to a specific computer or node. This is disclosed in column 4, lines 28-33 and column 5, lines 6-12.

18.   As per claim 16, Yeager fails to explicitly state wherein said comparison tool determines a network interface path based upon criteria selected from the group consisting of maximum availability of nodes in said network, availability of said gateway in said network, and combinations thereof.

Langfahl, Jr. discloses this limitation in column 5, lines 9-32. In response to the echo requests, the network map visually indicates whether the links, gateway, and computer/nodes have any problems.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have wherein said comparison tool determines a network interface path based upon criteria selected from the group consisting of maximum availability of nodes in said network, availability of said gateway in said

network, and combinations thereof. A person of ordinary skill in the art would have been

motivated to have wherein said comparison tool determines a network interface path

based upon criteria selected from the group consisting of maximum availability of nodes

in said network, availability of said gateway in said network, and combinations thereof

because ICMP echo requests indicate the success or failure of whether or not a network

computer/node, link, or gateway are functioning correctly when sent to a specific

computer or node. This is disclosed in column 4, lines 28-33 and column 5, lines 6-12.

19.   As per claim 18, Yeager discloses wherein the medium is selected from a group

consisting of: a recordable data storage medium, and a modulated carrier signal on

page 49, paragraph 0616. (101)

20.   As per claim 23, Yeager et al. discloses sending periodic heartbeat messages to

peer nodes in a network on page 21, paragraph 0270. Heartbeat messages are known

to be received back by the computer/node that sent it or it is not received back at all,

see Gadir et al. (USPN 2003/0018927).

Yeager fails to explicitly state issuing an operating system ICMP echo to peer

nodes and a gateway through a network interface in response to a heartbeat loss; and

determining a location of a fault in said cluster through a response echo.

Langfahl, Jr. discloses this limitation in column 3, lines 15-30 and column 5, lines

13-32.

Accordingly, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to have issuing an operating system ICMP echo to peer

nodes and a gateway through a network interface in response to a heartbeat loss; and

determining a location of a fault in said cluster through a response echo. A person of

ordinary skill in the art would have been motivated to have issuing an operating system

ICMP echo to peer nodes and a gateway through a network interface in response to a

heartbeat loss; and determining a location of a fault in said cluster through a response

echo because ICMP echo requests are used to indicate whether a network computer or ·

node is functioning correctly in order to give an indication of where a problem lies within

the network. This is disclosed in column 4, lines 28-33 and column 5, lines 6-12.

21.   As per claim 26, Yeager fails to explicitly state comparing echo responses to

determine a best path of connectivity.

Langfahl, Jr. discloses this limitation in column 3, lines 15-30 and column 5, lines

13-32.

Accordingly, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to have comparing echo responses to determine a best

path of connectivity. A person of ordinary skill in the art would have been motivated to

have comparing echo responses to determine a best path of connectivity because the

ICMP request and responses indicate by way of an network map which paths are

functioning and which paths are not functioning.

22.   As per claim 27, Yeager fails to explicitly state localizing a network connectivity

problem in response to return of at least one echo.

Langfahl, Jr. discloses this limitation in column 3, lines 15-30 and column 5, lines

13-32.

Accordingly, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to have localizing a network connectivity problem in

response to return of at least one echo. A person of ordinary skill in the art would have

been motivated to have localizing a network connectivity problem in response to return

of at least one echo because the ICMP request and responses indicate by way of an

network map which paths are functioning and which paths are not functioning.

23.   Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carter et

al. (USPN 5909540A) in view of Yeager. As per claim 28, Carter et al. discloses

determining a heartbeat loss in a cluster; validating said heartbeat loss; and localizing

said loss in column 31, lines 10-29.

Carter et al. fails to explicitly state configured with a gateway for a network

interface.

Yeager discloses this limitation on page 20, paragraph 0255 and page 41,

paragraph 0528.

Accordingly, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to have configured with a gateway for a network interface.

A person of ordinary skill in the art would have been motivated to have configured with a

gateway for a network interface because gateways are used to connect one cluster of

nodes with another network.

24.   Claims 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Carter et al. in view of Yeager in further view of Langfahl, Jr. As per claim 29, Carter et

al. and Yeager fail to explicitly state wherein the step of validating said heartbeat loss

includes sending an ICMP echo to peer nodes and said gateway through a network interface.

Langfahl, Jr. discloses this limitation in column 3, lines 15-30 and column 5, lines 13-32.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have wherein the step of validating said heartbeat loss includes sending an ICMP echo to peer nodes and said gateway through a network interface. A person of ordinary skill in the art would have been motivated to have wherein the step of validating said heartbeat loss includes sending an ICMP echo to peer nodes and said gateway through a network interface because ICMP echo requests are used to indicate whether a network computer or node is functioning correctly in order to give an indication of where a problem lies within the network. This is disclosed in column 4, lines 28-33 and column 5, lines 6-12.

25.   As per claim 30, Carter et al. and Yeager fail to explicitly state wherein the step of localizing said loss includes analyzing a response echo.

Langfahl, Jr. discloses this limitation in column 5, lines 13-32.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have wherein the step of localizing said loss includes analyzing a response echo. A person of ordinary skill in the art would have been motivated to have wherein the step of localizing said loss includes analyzing a response echo because ICMP echo requests indicate the success or failure of whether or not a network

computer/node is functioning correctly when sent to a specific computer or node. This is

disclosed in column 4, lines 28-33 and column 5, lines 6-12.

26.   As per claim 31, Carter et al. and Yeager fail to explicitly state determining a best

path of connectivity through a comparison of echo responses.

        Langfahl, Jr. discloses this limitation in column 3, lines 15-30 and column 5, lines

13-32.

        Accordingly, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to have determining a best path of connectivity through a

comparison of echo responses. A person of ordinary skill in the art would have been

motivated to have determining a best path of connectivity through a comparison of echo

responses because the ICMP request and responses indicate by way of a network map

which paths are functioning and which paths are not functioning.

27.   Claims 6,14,20 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Yeager in view of Langfahl, Jr. in further view of Ron Jachim. As per claims 6,20,

Yeager and Langfahl, Jr. fail to explicitly state issuing an application level ping to a peer

node in response to both receipt of said echo response within a predefined time interval

and said heartbeat beat loss detection.

        Yeager discloses using heartbeats to detect problems within a network. Langfahl,

Jr. discloses using ICMP echo requests to discover any problems within a network.

        Ron Jachim discloses using an application level ping on page 1.

        Accordingly, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to have issuing an application level ping to a peer node in

response to both receipt of said echo response within a predefined time interval and

said heartbeat beat loss detection. A person of ordinary skill in the art would have been

motivated to have issuing an application level ping to a peer node in response to both

receipt of said echo response within a predefined time interval and said heartbeat beat

loss detection because application level pings discover connection problems with

another computer/node.

28.   As per claim 14, Yeager and Langfahl, Jr. fail to explicitly state an application

level ping adapted to be issued to a peer node in response to both receipt of said echo

within a predefined time interval and a heartbeat beat loss detection.

       Yeager discloses using heartbeats to detect problems within a network. Langfahl,

Jr. discloses using ICMP echo requests to discover any problems within a network.

       Ron Jachim discloses using an application level ping on page 1.

       Accordingly, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to have an application level ping adapted to be issued to a

peer node in response to both receipt of said echo within a predefined time interval and

a heartbeat beat loss detection. A person of ordinary skill in the art would have been

motivated to have an application level ping adapted to be issued to a peer node in

response to both receipt of said echo within a predefined time interval and a heartbeat

beat loss detection because application level pings discover connection problems with

another computer/node.

29.   Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yeager

in view of Langfahl, Jr. in view of Hirst et al. (USPN 6581166B1) in further view of

Naeimi et al. (USPN 6363416B1). As per claim 24, Yeager and Langfahl, Jr. fail to

explicitly state wherein the step of issuing an operating system ICMP echo includes

sending said echo on a first network interface and a second network interface for multi-

homed nodes.

Hirst et al. discloses wherein the step of issuing an operating system ICMP echo

includes sending said echo on a first network interface and a second network interface

in column 9, line 51 – column 10, line 6.

Accordingly, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to have the step of issuing an operating system ICMP

echo include sending said echo on a first network interface and a second network

interface. A person of ordinary skill in the art would have been motivated to have the

step of issuing an operating system ICMP echo include sending said echo on a first

network interface and a second network interface because the echo requests determine

whether or not a fault exists on the network.

Yeager, Langfahl, Jr., and Hirst et al. fail to explicitly state multi-homed nodes.

Naeimi et al. discloses this limitation in column 11, lines 20-41.

Accordingly, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to have the echo's on first and second network interfaces

multi-homed nodes. A person of ordinary skill in the art would have been motivated to

have the echo's on first and second network interfaces multi-homed nodes because

multi-homed nodes are nodes that are coupled to multiple networks through multiple

network interfaces.

30.   Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yeager

in view of Langfahl, Jr. in further view of Gadir et al. As per claim 25, Yeager and

Langfahl, Jr. fail to explicitly state wherein said loss is selected from a group consisting

of: a node loss, and network path loss.

Gadir et al. discloses this on page 1, paragraphs 0005 and 0007.

Accordingly, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to have wherein said loss is selected from a group

consisting of: a node loss, and network path loss. A person of ordinary skill in the art

would have been motivated to have wherein said loss is selected from a group

consisting of: a node loss, and network path loss because heartbeat messages sent to

from one computer/node to another computer/node indicate whether or not there is a

problem within a network.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Yolanda L. Wilson whose telephone number is (571)

272-3653. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Robert Beausoliel can be reached on (571) 272-3645. The fax phone

number for the organization where this application or proceeding is assigned is 571-

273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

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For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Yolanda L Wilson
Examiner
Art Unit 2113